TinyOS Network Protocol Working Group (net2)

Progress Report

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ETH, IPP, UCB, USC, Arch Rock, MIT, Stanford,
Harvard, Moteiv, Crossbow

net2 Charter

- Define the interfaces to basic network protocols in t2, such as collection and dissemination
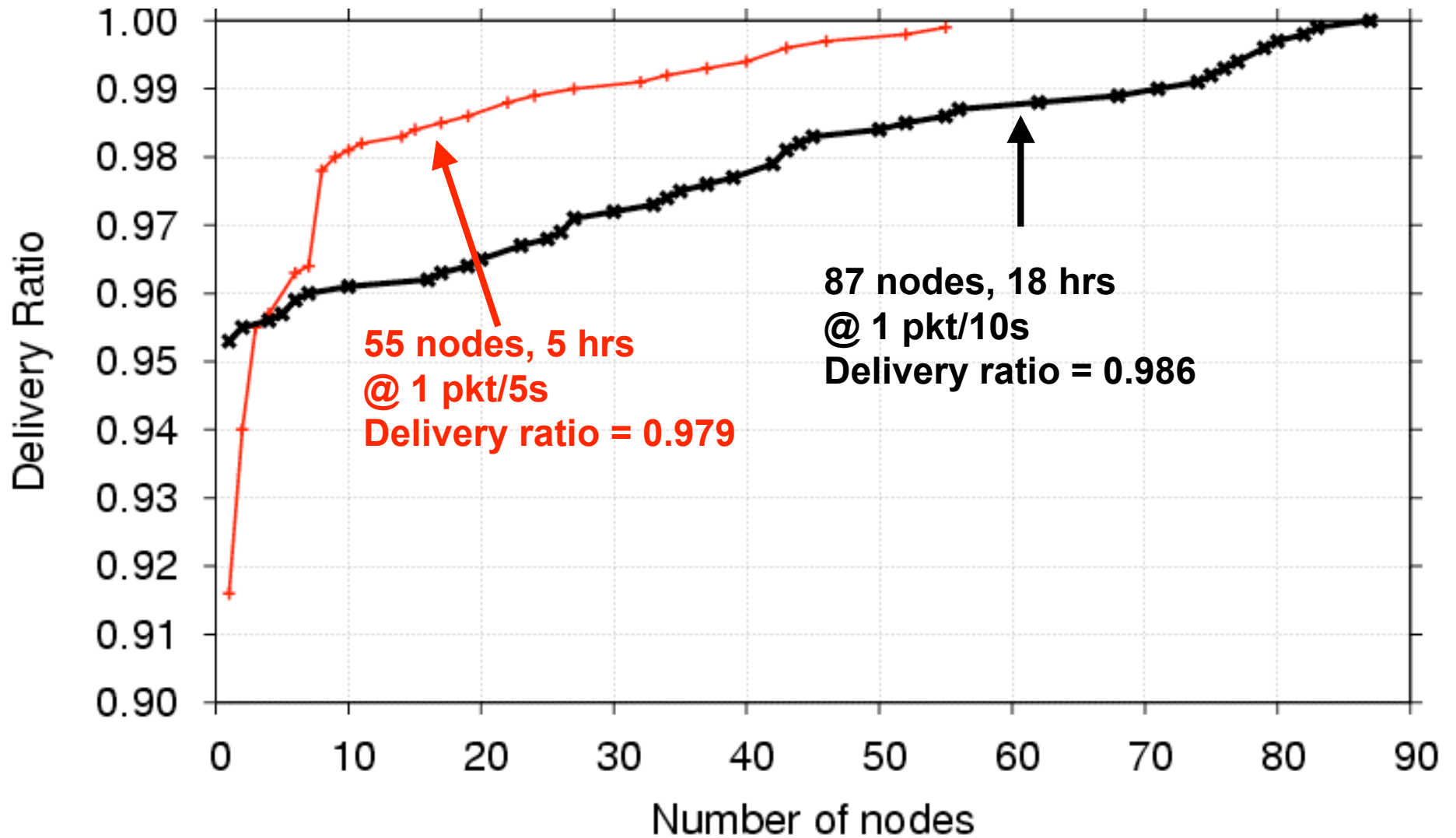- Produce reference implementations of those protocols

http://tinyos.stanford.edu:8000/Net2WG

Output Over the Past Year

- ## Protocol Implementations
  - Dissemination
  - Collection
  - MultihopLQI

- ## Code Documentation
  - Collection (TEP 119) and Dissemination (TEP 118)

- ## Protocol Specifications
  - CTP (TEP 123) and LEEP (TEP 124)
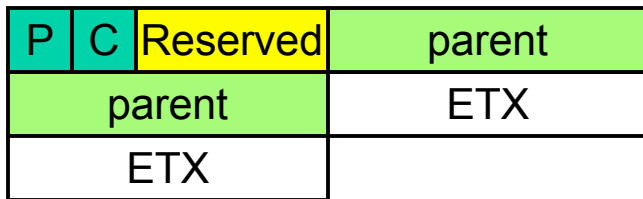
Protocol Implementations

- ## Dissemination
  - Disseminate <key,value> throughout the network from a base station

- ## Collection
  - Collect data from all the nodes in the network

- ## Applications
  - TestNetwork
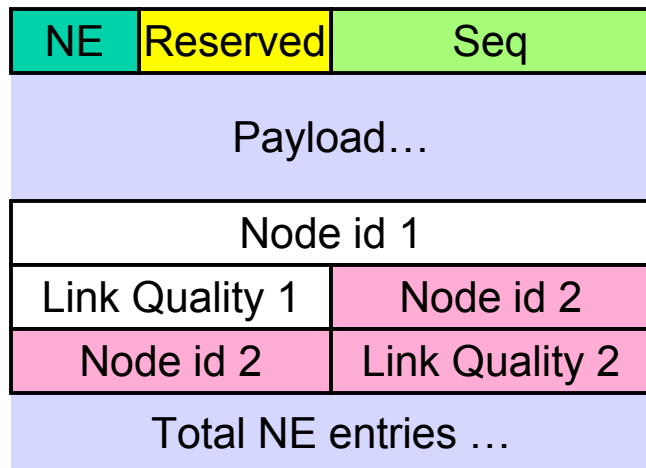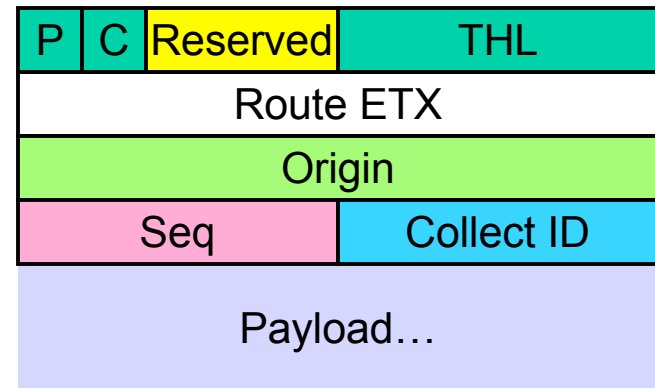 - MultihopOscilloscope

CTP Collection is Reliable!

55 nodes, 5 hrs
@ 1 pkt/5s
Delivery ratio = 0.979

87 nodes, 18 hrs
@ 1 pkt/10s
Delivery ratio = 0.986

Delivery Ratio

Number of nodes

CTP and LEEP Specification

CTP Routing Frame

P	C	Reserved	parent
	parent		ETX
	ETX		

CTP Data Frame

P	C	Reserved	THL
	Route ETX		
	Origin		
	Seq		Collect ID
	Payload…		

LEEP Frame

NE	Reserved	Seq
	Payload…	
	Node id 1	
Link Quality 1		Node id 2
Node id 2		Link Quality 2
	Total NE entries …	

Call for Involvement

- Future Net2 projects
  - Zigbee
  - Deluge (with core)
  - Link layer specification (with core)
  - CTP interoperability: SunSpot, SOS…
  - And your protocols …
- Participation Requirements
  - Have experience with network protocols
  - Commit to supporting code for a year
- Contact Omprakash Gnawali (chair) (gnawali@usc.edu)